

COVID-19 mRNA Vaccines: Lessons Learned from the Registrational Trials and Global Vaccination Campaign

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1. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. Polack FP, Thomas SJ, Kitchin N, et al. N Engl J Med. 2020;383:2603–2615. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
 2. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. Baden LR, El Sahly HM, Essink B, et al. N Engl J Med. 2021;384:403–416. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
 3. Placebo use and unblinding in COVID-19 vaccine trials: recommendations of a WHO Expert Working Group. Singh JA, Kochhar S, Wolff J. Nat Med. 2021;27:569–570. [[PubMed](#)] [[Google Scholar](#)]
 4. Mumps in the workplace. Further evidence of the changing epidemiology of a childhood vaccine-preventable disease. Kaplan KM, Marder DC, Cochi SL, et al. JAMA. 1988;260:1434–1438. [[PubMed](#)] [[Google Scholar](#)]
 5. Vaccine Research & Development: How can COVID-19 vaccine development be done quickly and safely? [Oct; 2023]. 2013. <https://coronavirus.jhu.edu/vaccines/timeline>
 6. New York State Department of Health: The science behind vaccine research and testing. [Oct; 2023]. 2023. https://www.health.ny.gov/prevention/immunization/vaccine_safety/science.htm
 7. Altman PM, Rowe J, Hoy W, et al. Did National Security Imperatives Compromise COVID-19 Vaccine Safety? [Sep; 2023]. 2022. <https://www.trialsitenews.com/a/did-national-security-imperatives-compromise-covid-19-vaccine-safety-adfea242>
 8. America's Long, Expensive, and Deadly Love Affair with mRNA. [Mar; 2023];McCullough P. <https://petermcculloughmd.substack.com/p/americas-long-expensive-and-deadly> March. 2023 11:2023–2015. [[Google Scholar](#)]

9. Accelerated development of COVID-19 vaccines: technology platforms, benefits, and associated risks. Wagner R, Hildt E, Grabski E, et al. *Vaccines* (Basel) 2021;9:747. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
10. Vaccine safety issues at the turn of the 21st century. Conklin L, Hviid A, Orenstein WA, Pollard AJ, Wharton M, Zuber P. *BMJ Glob Health*. 2021;6 [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
11. Emergence of post COVID-19 vaccine autoimmune diseases: a single center study. Alqatari S, Ismail M, Hasan M, et al. *Infect Drug Resist*. 2023;16:1263–1278. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
12. Immunization Safety Review: SV40 Contamination of Polio Vaccine and Cancer. Washington DC: National Academies Press (US); 2002. [[PubMed](#)] [[Google Scholar](#)]
13. Narcolepsy and H1N1 influenza immunology a decade later: what have we learned? Buonocore SM, van der Most RG. *Front Immunol*. 2022;13:902840. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
14. Estimation of the probability that Guillain-Barre syndrome was caused by the swine flu vaccine: US experience (1976-77) Greenstreet RL. *Med Sci Law*. 1984;24:61–67. [[PubMed](#)] [[Google Scholar](#)]
15. Covid-19 vaccines: in the rush for regulatory approval, do we need more data? Doshi P. *BMJ*. 2021;373:0. [[PubMed](#)] [[Google Scholar](#)]
16. A dangerous rush for vaccines. Thorp HH. *Science*. 2020;369:885. [[PubMed](#)] [[Google Scholar](#)]
17. The rush to create a COVID-19 vaccine may do more harm than good. Torreele E. *BMJ*. 2020;370:0. [[PubMed](#)] [[Google Scholar](#)]
18. US public investment in development of mRNA covid-19 vaccines: retrospective cohort study. Lalani HS, Nagar S, Sarpatwari A, Barenie RE, Avorn J, Rome BN, Kesselheim AS. *BMJ*. 2023;380:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
19. Public-sector contributions to novel biologic drugs. Nayak RK, Lee CC, Avorn J, Kesselheim AS. *JAMA Intern Med*. 2021;181:1522–1525. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
20. BARDA Strategic Plan, 2022-2026: Fortifying the Nation's Health Security. Washington, D.C.: Biomedical Advanced Research and Development Authority;

2022. U.S. Department of Health and Human Services: BARDA Strategic Plan, 2022-2026. (2022). Accessed: October 16. [[Google Scholar](#)]
21. mRNA: vaccine or gene therapy? the safety regulatory issues. Banoun H. Int J Mol Sci. 2023;24:10514. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
22. RNA-based drugs and regulation: toward a necessary evolution of the definitions issued from the European Union legislation. Guerriaud M, Kohli E. Front Med (Lausanne) 2022;9:1012497. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
23. The ReNAissanCe of mRNA-based cancer therapy. Van Lint S, Renmans D, Broos K, et al. Expert Rev Vaccines. 2015;14:235–251. [[PubMed](#)] [[Google Scholar](#)]
24. Understanding the pharmacology of COVID-19 mRNA vaccines: playing dice with the spike? Cosentino M, Marino F. Int J Mol Sci. 2022;23:10881. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
25. Adverse effects of COVID-19 mRNA vaccines: the spike hypothesis. Trougakos IP, Terpos E, Alexopoulos H, et al. Trends Mol Med. 2022;28:542–554. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
26. Innate immune suppression by SARS-CoV-2 mRNA vaccinations: the role of G-quadruplexes, exosomes, and microRNAs. Seneff S, Nigh G, Kyriakopoulos AM, McCullough PA. Food Chem Toxicol. 2022;164:113008. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
27. Investigation of the relationship between the immune responses due to COVID-19 vaccine and peripheral blood lymphocyte subtypes of healthcare workers [Article in Turkish] Çalık Ş, Demir İ, Uzeke E, Tosun S, Özkan Özdemir H, Coşkun SA, Demir S. <https://pubmed.ncbi.nlm.nih.gov/36458718/> Mikrobiyol Bul. 2022;56:729–739. [[PubMed](#)] [[Google Scholar](#)]
28. Distinguishing features of current COVID-19 vaccines: knowns and unknowns of antigen presentation and modes of action. Heinz FX, Stiasny K. NPJ Vaccines. 2021;6:104. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
29. Censorship and suppression of Covid-19 heterodoxy: tactics and counter-tactics. Shir-Raz Y, Elisha E, Martin B, Ronel N, Guetzkow J. Minerva. 2022;1–27. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
30. Bhattacharya J, Kulldorff M. We're Fighting the Covid Censors. [Jan; 2024]. 2023. <https://thespectator.com/topic/were-fighting-the-covid-censors-censorship/>

31. Will COVID-19 vaccines save lives? Current trials aren't designed to tell us. Doshi P. BMJ. 2020;371:o. [[PubMed](#)] [[Google Scholar](#)]
32. Pfizer: COVID-19 vaccine maker pledge. [Nov; 2023]. 2020. <https://www.pfizer.com/news/announcements/covid-19-vaccine-maker-pledge>
33. COVID-19 vaccines: comparison of biological, pharmacological characteristics and adverse effects of Pfizer/BioNTech and Moderna vaccines. Meo SA, Bukhari IA, Akram J, Meo AS, Klonoff DC. Eur Rev Med Pharmacol Sci. 2021;25:1663–1669. [[PubMed](#)] [[Google Scholar](#)]
34. Cohen J: 'Absolutely. 'Absolutely remarkable': No one who got Moderna's vaccine in trial developed severe COVID-19. [Oct; 2023]. 2020. <https://www.science.org/content/article/absolutely-remarkable-no-one-who-got-modernas-vaccine-trial-developed-severe-COVID-19>
35. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine through 6 months. Thomas SJ, Moreira ED Jr, Kitchin N, et al. N Engl J Med. 2021;385:1761–1773. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
36. Plausibility But Not Science Has Dominated Public Discussions of the Covid Pandemic. [Oct; 2023];Risch H. <https://brownstone.org/articles/plausibility-but-not-science-has-dominated-public-discussions-of-the-covid-pandemic/> Nov. 2022 26:2022–2016. [[Google Scholar](#)]
37. Peter Doshi: Pfizer and Moderna's "95% effective" vaccines—we need more details and the raw data. [Oct; 2023];Doshi P: Pfizer and Moderna's "95. <https://blogs.bmj.com/bmj/2021/01/04/peter-doshi-pfizer-and-modernas-95-effective-vaccines-we-need-more-details-and-the-raw-data/> BMJ commentary. (Feb. 2021 5:2021–2016. [[Google Scholar](#)]
38. Interim Report - Adolescent 6-Month Update: A Phase 1/2/3, Placebo-Controlled, Randomized, Observer-Blind, Dose-Finding Study to Evaluate the Safety, Tolerability, Immunogenicity, and Efficacy of SARS-CoV-2 RNA Vaccine Candidates Against COVID-19 in Healthy Individuals. Vol. 2023. New York, NY: Pfizer Inc; [Dec; 2023]. 2021. Data Parliament UK: Interim Clinical Study Report. PF-07302048 (BNT162 RNA-based COVID-19 vaccines) protocol C4591001. (2020) pp. 2023–2138. [[Google Scholar](#)]
39. Moderna Clinical study protocol: A phase 3, randomized, stratified, observer-blind, placebo-controlled study to evaluate the efficacy, safety, and immunogenicity of mRNA-1273 SARS-CoV-2 vaccine in adults aged 18 years and older. Protocol No. mRNA-1273-P301. (2020) [Dec; 2023

];<https://www.modernatx.com/sites/default/files/mRNA-1273-P301-Protocol.pdf>
2020 1273:301. [[Google Scholar](#)]

40. Age-stratified infection fatality rate of COVID-19 in the non-elderly population. Pezzullo AM, Axfors C, Contopoulos-Ioannidis DG, Apostolatos A, Ioannidis JP. Environ Res. 2023;216:114655. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

41. Global prevalence and effect of comorbidities and smoking status on severity and mortality of COVID-19 in association with age and gender: a systematic review, meta-analysis and meta-regression. Chenchula S, Vidyasagar K, Pathan S, et al. Sci Rep. 2023;13:6415. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

42. How fatal is COVID-19 compared with seasonal influenza? The devil is in the detail [Rapid Response] Thornley S, Morris AJ, Sundborn G, Bailey S.
<https://www.bmj.com/content/371/bmj.m3883/rr> BMJ. 2020 [[Google Scholar](#)]

43. Excess deaths associated with covid-19 pandemic in 2020: age and sex disaggregated time series analysis in 29 high income countries. Islam N, Shkolnikov VM, Acosta RJ, et al. BMJ. 2021;373:o. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

44. Leveraging epidemiological principles to evaluate Sweden's COVID-19 response. Baral S, Chandler R, Prieto RG, Gupta S, Mishra S, Kulldorff M. Ann Epidemiol. 2021;54:21–26. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

45. COVID-19 vaccine concerns: fact or fiction? Barbari A. Exp Clin Transplant. 2021;19:627–634. [[PubMed](#)] [[Google Scholar](#)]

46. Principles learned from the international race to develop a safe and effective COVID-19 vaccine. Thames AH, Wolniak KL, Stupp SI, Jewett MC. ACS Cent Sci. 2020;6:1341–1347. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

47. Frequency and associations of adverse reactions of COVID-19 vaccines reported to pharmacovigilance systems in the European Union and the United States. Montano D. Front Public Health. 2021;9:756633. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

48. Serious adverse reaction associated with the COVID-19 vaccines of BNT162b2, Ad26.COV2.S, and mRNA-1273: gaining insight through the VAERS. Yan MM, Zhao H, Li ZR, et al. Front Pharmacol. 2022;13:921760. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

49. US COVID-19 vaccines proven to cause more harm than good based on pivotal clinical trial data analyzed using the proper scientific endpoint, “all cause severe morbidity” Classen B. <https://www.scivisionpub.com/abstract-display.php?id=1811> Trends Int Med. 2021;1:1–6. [[Google Scholar](#)]
50. Serious adverse events of special interest following mRNA COVID-19 vaccination in randomized trials in adults. Fraiman J, Erviti J, Jones M, Greenland S, Whelan P, Kaplan RM, Doshi P. Vaccine. 2022;40:5798–5805. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
51. Is the harm-to-benefit ratio a key criterion in vaccine approval? Mörl F, Günther M, Rockenfeller R. Front Med (Lausanne) 2022;9:879120. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
52. Randomised clinical trials of COVID-19 vaccines: do adenovirus-vector vaccines have beneficial non-specific effects? Benn CS, Schaltz-Buchholzer F, Nielsen S, et al. Lancet preprint. April. 5:2022. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
53. Have People Been Given the Wrong Vaccine? [Oct; 2023];Kulldorf M. <https://brownstone.org/articles/have-people-been-given-the-wrong-vaccine/> Apr. 2022 22:2022–2016. [[Google Scholar](#)]
54. Forensic analysis of the 38 subject deaths in the 6- month interim report of the Pfizer/BioNTech BNT162b2 mRNA vaccine clinical trial. Michels CA, Perrier D, Kunadhasan J, et al. IJVTPr. 2023;3:973–1009. [[Google Scholar](#)]
55. Vaccines and Related Biological Products Advisory Committee Meeting, September 17, 2021. FDA Briefing Document: Application for Licensure of a Booster Dose for COMIRNATY (COVID-19 Vaccine, mRNA) White Oak, MD: US Food and Drug Administration; [Dec; 2023]. 2021. FDA: FDA Briefing Document. Vaccines and related biological products advisory committee (VRBPAC) meeting. Application for licensure of a booster dose for COMIRNATY (COVID-19 vaccine, mRNA) [[Google Scholar](#)]
56. Summary Basis for Regulatory Action. Review Committee’s Recommendation to Approve Pfizer-BioNTech product, COMIRNATY (COVID-19 Vaccine, mRNA) Vol. 8. White Oak, MD: US Food and Drug Administration; 2021. FDA: Summary basis for regulatory action. Review committee’s recommendation to approve Pfizer-BioNTech product, COMIRNATY (COVID-19 Vaccine, mRNA). (Nov; pp. 2021–2016. [[Google Scholar](#)]
57. Myocarditis cases reported after mRNA-based COVID-19 vaccination in the US from December 2020 to August 2021. Oster ME, Shay DK, Su JR, et al. JAMA.

- 2022;327:331–340. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
58. Viruses, vaccines and cardiovascular effects. Rees AR. Br J Cardiol. 2022;29:16. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
59. Epidemiology, clinical ramifications, and cellular pathogenesis of COVID-19 mRNA-vaccination-induced adverse cardiovascular outcomes: a state-of-the-heart review. Almas T, Rehman S, Mansour E, et al. Biomed Pharmacother. 2022;149:112843. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
60. A systematic review and meta-analysis of the association between SARS-CoV-2 vaccination and myocarditis or pericarditis. Gao J, Feng L, Li Y, et al. Am J Prev Med. 2023;64:275–284. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
61. Adverse events following COVID-19 mRNA vaccines: a systematic review of cardiovascular complication, thrombosis, and thrombocytopenia. Yasmin F, Najeeb H, Naeem U, et al. Immun Inflamm Dis. 2023;11:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
62. Cardiovascular complications of SARS-CoV-2 vaccines: an overview. Shiravi AA, Ardekani A, Sheikhabaei E, Heshmat-Ghahdarjani K. Cardiol Ther. 2022;11:13–21. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
63. Cardiovascular adverse events reported from COVID-19 vaccines: a study based on WHO database. Jeet Kaur R, Dutta S, Charan J, et al. Int J Gen Med. 2021;14:3909–3927. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
64. Did the Pfizer Trial Show the Vaccine Increases Heart Disease Deaths? [Oct; 2023];Masterjohn C. <https://chrismasterjohnphd.substack.com/p/did-the-pfizer-trial-show-the-vaccine> February. 2022 19:2022–2016. [[Google Scholar](#)]
65. Outcome reporting bias in COVID-19 mRNA vaccine clinical trials. Brown RB. Medicina (Kaunas) 2021;57:199. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
66. COVID-19 vaccine efficacy and effectiveness-the elephant (not) in the room. Olliaro P, Torreele E, Vaillant M. Lancet Microbe. 2021;2:0–80. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
67. Dangers of mRNA vaccines. Ali T, Mujawar S, Sowmya AV, Saldanha D, Chaudhury S. Ind Psychiatry J. 2021;30:0–3. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
68. US Food and Drug Administration: Roster of the vaccines and related biological products advisory committee. [Dec; 2023]. 2020. <https://www.fda.gov/advisory-committees/vaccines-and-related-biological->

69. Communicating Risks and Benefits: An Evidence-Based User's Guide. Silver Spring, MA: US Department of Health and Human Services; 2011.
Communicating risks and benefits: An evidence-based user's guide. Food and Drug Administration (FDA), US Department of Health and Human Services: Silver Spring, MA. (2011). Accessed: October 16. [[Google Scholar](#)]
70. Number needed to vaccinate with a COVID-19 booster to prevent a COVID-19-associated hospitalization during SARS-CoV-2 Omicron BA.1 variant predominance, December 2021-February 2022, VISION Network: a retrospective cohort study. Adams K, Riddles JJ, Rowley EA, et al. Lancet Reg Health Am. 2023;23:100530. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
71. Serious harms of the COVID-19 vaccines: a systematic review [PREPRINT] Gøtzsche PC, Demasi M. medRxiv. 2022 [[Google Scholar](#)]
72. Gøtzsche PC. Boca Raton, FL: CRC Press; 2013. Deadly Medicines and Organized Crime: How Big Pharma has Corrupted Health Care. [[Google Scholar](#)]
73. Gøtzsche PC. New York: Skyhorse Publishing; 2020. Vaccines: Truth, Lies, and Controversy . [[Google Scholar](#)]
74. Made in China: the coronavirus that killed millions of people. Gøtzsche PC. Indian J Med Ethics. 2022;VII:254. [[PubMed](#)] [[Google Scholar](#)]
75. Are Adverse Events in Covid-19 Vaccine Trials Under-Reported? [Oct; 2023];Demasi M. <https://maryannedemasi.com/publications/f/are-adverse-events-in-covid-19-vaccine-trials-under-reported> Nov. 2021 24:2021–2016. [[Google Scholar](#)]
76. Under-reporting of adverse drug reactions : a systematic review. Hazell L, Shakir SA. Drug Saf. 2006;29:385–396. [[PubMed](#)] [[Google Scholar](#)]
77. Covid-19: should doctors recommend treatments and vaccines when full data are not publicly available? Johnson RM, Doshi P, Healy D. BMJ. 2020;370:0. [[PubMed](#)] [[Google Scholar](#)]
78. Summary of Clinical Safety. New York, NY: Pfizer Inc.; 2021. Pfizer summary clinical safety report 2.7.4 STN. (2021). Accessed: October 16. [[Google Scholar](#)]
79. Mortality in the United States, 2020. Murphy SL, Kochanek KD, Xu J, Arias E. <https://www.cdc.gov/nchs/products/databriefs/db427.htm> NCHS Data Brief. 2021;No. 427 [[PubMed](#)] [[Google Scholar](#)]

80. Cardiac side effects of RNA-based SARS-CoV-2 vaccines: hidden cardiotoxic effects of mRNA-1273 and BNT162b2 on ventricular myocyte function and structure. Schreckenber R, Woitasky N, Itani N, Czech L, Ferdinandy P, Schulz R. Br J Pharmacol. 2024;181:345–361. [[PubMed](#)] [[Google Scholar](#)]
81. Vaccines and Related Biological Products Advisory Committee, December 10, 2020. FDA Briefing Document: Pfizer-BioNTech COVID-19 Vaccine. White Oak, MD: US Food and Drug Administration; [Dec; 2023]. 2020. Vaccines and Related Biological Products Advisory Committee: FDA briefing document: Pfizer-BioNTech COVID-19 vaccine. (Dec. 10, 2020). . [[Google Scholar](#)]
82. Palmer M, Bhakdi S, Hooker B, et al. mRNA Vaccine Toxicity. Amsterdam, The Netherlands: Doctors for COVID Ethics; 2023. Evidence of fraud in Pfizer’s clinical trials; pp. 37–39. [[Google Scholar](#)]
83. Assessment Report: Comirnaty. Vol. 19. Amsterdam, The Netherlands: European Medicines Agency; 2020. Anonymous: EMA Assessment report: Comirnaty; pp. 2021–2016. [[Google Scholar](#)]
84. Anomalous Patterns of Mortality and Morbidity in Pfizer’s Covid-19 Vaccine Trial. [Oct; 2023];Gulbrandsen T, Neil M, Fenton NE. <https://wherearethenumbers.substack.com/p/anomalous-patterns-of-mortality-and> October. 2023 20:2023–2020. [[Google Scholar](#)]
85. Covid-19: researcher blows the whistle on data integrity issues in Pfizer’s vaccine trial. Thacker PD. BMJ. 2021;375:0. [[PubMed](#)] [[Google Scholar](#)]
86. A strong pandemic response relies on good data. Godlee F. BMJ. 2021;375:0. [[Google Scholar](#)]
87. Informed consent disclosure to vaccine trial subjects of risk of COVID-19 vaccines worsening clinical disease. Cardozo T, Veazey R. Int J Clin Pract. 2021;75:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
88. Beyond Nazi War Crimes Experiments: The Voluntary Consent Requirement of the Nuremberg Code at 70. Annas GJ. Am J Public Health. 2018;108:42–46. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
89. The coverage of medical injuries in company trial informed consent forms. Healy D, Germán Roux A, Dressen B. Int J Risk Saf Med. 2023;34:121–128. [[PubMed](#)] [[Google Scholar](#)]
90. COVID Vaccine Package Insert is Blank Because Up-to-Date Information is Online. [Jan; 2024]. 2021. <https://apnews.com/article/fact-checking->

91. CDC COVID-19 Science Briefs [Internet] Atlanta (GA): National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases; [Jan; 2024]. 2021. Science brief: COVID-19 vaccines and vaccination. [[Google Scholar](#)]
92. Household transmission of SARS-CoV-2: a systematic review and meta-analysis. Madewell ZJ, Yang Y, Longini IM Jr, Halloran ME, Dean NE. JAMA Netw Open. 2020;3:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
93. Prevention of host-to-host transmission by SARS-CoV-2 vaccines. Mostaghimi D, Valdez CN, Larson HT, Kalinich CC, Iwasaki A. Lancet Infect Dis. 2022;22:0–8. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
94. Interpreting vaccine efficacy trial results for infection and transmission. Lipsitch M, Kahn R. Vaccine. 2021;39:4082–4088. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
95. Effect of COVID-19 vaccination on household transmission of SARS-CoV-2 in the Omicron era: the vaccine effectiveness, networking, and universal safety (VENUS) study. Maeda M, Murata F, Fukuda H. Int J Infect Dis. 2023;134:200–206. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
96. Comparative transmission of SARS-CoV-2 Omicron (B.1.1.529) and Delta (B.1.617.2) variants and the impact of vaccination: national cohort study, England. Allen H, Tessier E, Turner C, et al. Epidemiol Infect. 2023;151:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
97. Evaluation of waning of SARS-CoV-2 vaccine-induced immunity: a systematic review and meta-analysis. Menegale F, Manica M, Zardini A, et al. JAMA Netw Open. 2023;6:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
98. Neutralizing antibodies against SARS-CoV-2 are higher but decline faster in mRNA vaccinees compared to individuals with natural infection. Abou-Saleh H, Abo-Halawa BY, Younes S, et al. J Travel Med. 2022;29:130. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
99. Effectiveness of the coronavirus disease 2019 bivalent vaccine. Shrestha NK, Burke PC, Nowacki AS, Simon JF, Hagen A, Gordon SM. Open Forum Infect Dis. 2023;10:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
100. Risk of coronavirus disease 2019 (COVID-19) among those up-to-date and not up-to-date on COVID-19 vaccination by US CDC criteria. Shrestha NK, Burke

PC, Nowacki AS, Gordon SM. PLoS One. 2023;18:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

101. Vaccine-Induced Immune Response to Omicron Wanes Substantially Over Time. [Oct; 2023];<https://www.nih.gov/news-events/news-releases/vaccine-induced-immune-response-omicron-wanes-substantially-over-time> Jul. 2022 19:2022–2016. [[Google Scholar](#)]

102. Protection by a fourth dose of BNT162b2 against Omicron in Israel. Bar-On YM, Goldberg Y, Mandel M, et al. N Engl J Med. 2022;386:1712–1720. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

103. The efficacy of COVID-19 vaccine boosters against severe illness and deaths scientific fact or wishful myth? Ophir Y, Shira-Raz Y, Zakov S, et al. <https://jupands.org/vol28no1/ophir.pdf> J Am Phys Surg. 2023;28:20–27. [[Google Scholar](#)]

104. SARS-CoV-2 reinfections: overview of efficacy and duration of natural and hybrid immunity. Pilz S, Theiler-Schwetz V, Trummer C, Krause R, Ioannidis JP. Environ Res. 2022;209:112911. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

105. Hybrid immunity to SARS-CoV-2 from infection and vaccination-evidence synthesis and implications for new COVID-19 vaccines. Spinardi JR, Srivastava A. Biomed. 2023;11:370. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

106. Vaccine-associated enhanced disease in humans and animal models: Lessons and challenges for vaccine development. Bigay J, Le Grand R, Martinon F, Maisonnasse P. Front Microbiol. 2022;13:932408. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

107. Vaccine-associated enhanced disease and pathogenic human coronaviruses. Gartlan C, Tipton T, Salguero FJ, Sattentau Q, Gorringer A, Carroll MW. Front Immunol. 2022;13:882972. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

108. Bossche GV. Aspen, CO: Pierucci Publishing; 2023. The Inescapable Immune Escape Pandemic. [[Google Scholar](#)]

109. Autoimmune and autoinflammatory conditions after COVID-19 vaccination. New case reports and updated literature review. Rodríguez Y, Rojas M, Beltrán S, et al. J Autoimmun. 2022;132:102898. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

110. Molecular mimicry and autoimmunity in the time of COVID-19. Rojas M, Herrán M, Ramírez-Santana C, Leung PS, Anaya JM, Ridgway WM, Gershwin ME.

J Autoimmun. 2023;139:103070. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

111. Do COVID-19 RNA-based vaccines put at risk of immune-mediated diseases? In reply to "potential antigenic cross-reactivity between SARS-CoV-2 and human tissue with a possible link to an increase in autoimmune diseases". Talotta R. Clin Immunol. 2021;224:108665. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

112. Covid-19 vaccine and autoimmunity: awakening the sleeping dragon. Akinosoglou K, Tzivaki I, Marangos M. Clin Immunol. 2021;226:108721. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

113. Autoimmune inflammatory reactions triggered by the COVID-19 genetic vaccines in terminally differentiated tissues. Polykretis P, Donzelli A, Lindsay JC, et al. Autoimmunity. 2023;56:2259123. [[PubMed](#)] [[Google Scholar](#)]

114. Appendix 2.2 Cumulative and Interval Summary Tabulation of Serious and Non-serious Adverse Reactions From Post-marketing Data Sources (BNT162B2) Vol. 21. New York, NY: Pfizer Inc.; 2022. Cumulative and interval summary tabulation of serious and non-serious adverse reactions from post-marketing data sources; pp. 2022–2016. [[Google Scholar](#)]

115. Comparison of mRNA-1273 and BNT162b2 vaccines on breakthrough SARS-CoV-2 infections, hospitalizations, and death during the delta-predominant period. Wang L, Davis PB, Kaelber DC, Volkow ND, Xu R. JAMA. 2022;327:678–680. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

116. Analysis of COVID-19 vaccine type and adverse effects following vaccination. Beatty AL, Peyser ND, Butcher XE, et al. JAMA Netw Open. 2021;4:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

117. Adverse reactions to the BNT162b2 and mRNA-1273 mRNA COVID-19 vaccines in Japan. Kitagawa H, Kaiki Y, Sugiyama A, et al. J Infect Chemother. 2022;28:576–581. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

118. Adverse events reported after administration of BNT162b2 and mRNA-1273 COVID-19 vaccines among hospital workers: a cross-sectional survey-based study in a Spanish hospital. Valera-Rubio MM, Sierra-Torres MI, Castillejo García RR, Cordero-Ramos JJ, López-Márquez MR, Cruz-Salgado ÓO, Calleja-Hernández MÁM. Expert Rev Vaccines. 2022;21:533–540. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

119. Reactogenicity following receipt of mRNA-based COVID-19 vaccines. Chapin-Bardales J, Gee J, Myers T. JAMA. 2021;325:2201–2202. [[PubMed](#)] [[Google Scholar](#)]

120. Reactogenicity within 2 weeks after mRNA COVID-19 vaccines: findings from the CDC v-safe surveillance system. Chapin-Bardales J, Myers T, Gee J, et al. *Vaccine*. 2021;39:7066–7073. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
121. Factors associated with stroke after COVID-19 vaccination: a statewide analysis. Nahab F, Bayakly R, Sexton ME, Lemuel-Clarke M, Henriquez L, Rangaraju S, Ido M. *Front Neurol*. 2023;14:1199745. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
122. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) naturally acquired immunity versus vaccine-induced immunity, reinfections versus breakthrough infections: a retrospective cohort study. Gazit S, Shlezinger R, Perez G, et al. *Clin Infect Dis*. 2022;75:0–51. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
123. Naturally enhanced neutralizing breadth against SARS-CoV-2 one year after infection. Wang Z, Muecksch F, Schaefer-Babajew D, et al. *Nature*. 2021;595:426–431. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
124. Evolution of antibody responses up to 13 months after SARS-CoV-2 infection and risk of reinfection. Gallais F, Gantner P, Bruel T, et al. *EBioMedicine*. 2021;71:103561. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
125. SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative health-care workers in England: a large, multicentre, prospective cohort study (SIREN) Hall VJ, Foulkes S, Charlett A, et al. *Lancet*. 2021;397:1459–1469. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
126. Association of SARS-CoV-2 seropositive antibody test with risk of future infection. Harvey RA, Rassen JA, Kabelac CA, et al. *JAMA Intern Med*. 2021;181:672–679. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
127. SARS-CoV-2 infection induces long-lived bone marrow plasma cells in humans. Turner JS, Kim W, Kalaidina E, et al. *Nature*. 2021;595:421–425. [[PubMed](#)] [[Google Scholar](#)]
128. Exposure to SARS-CoV-2 generates T-cell memory in the absence of a detectable viral infection. Wang Z, Yang X, Zhong J, et al. *Nat Commun*. 2021;12:1724. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
129. Immune boosting by B.1.1.529 (Omicron) depends on previous SARS-CoV-2 exposure. Reynolds CJ, Pade C, Gibbons JM, et al. *Science*. 2022;377:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

130. Dynamics of naturally acquired immunity against severe acute respiratory syndrome coronavirus 2 in children and adolescents. Patalon T, Saciuk Y, Perez G, Peretz A, Ben-Tov A, Gazit S. *J Pediatr*. 2023;257:113371. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
131. mRNA-based therapeutics--developing a new class of drugs. Sahin U, Karikó K, Türeci Ö. *Nat Rev Drug Discov*. 2014;13:759–780. [[PubMed](#)] [[Google Scholar](#)]
132. Parental hesitancy and attitude concerning COVID-19 vaccine and its side effects in Saudi Arabia, Eastern region. Majzoub RA, Alrofaie OH, Almotreb LK, Alateeq SK, Bin Obaid FR. *Cureus*. 2023;15:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
133. COVID-19 vaccination attitudes, values, intentions: US parents for their children, September 2021. Dudley MZ, Schwartz B, Brewer J, et al. *Vaccine*. 2023;41:7395–7408. [[PubMed](#)] [[Google Scholar](#)]
134. Immediate and long-term adverse events of COVID-19 vaccines: a one-year follow-up study from the Kurdistan Region of Iraq. Abdulkader MA Sr, Merza MA. *Cureus*. 2023;15:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
135. Assessing the self-reported after events following immunization of COVID-19 vaccines in Turkey and Bangladesh. Sultana A, Mim SR, Saha A, et al. *Environ Sci Pollut Res Int*. 2023;30:47381–47393. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
136. Brighton Collaboration; Task Force for Global Health. Priority List of Adverse Events of Special Interest: COVID-19. [Oct; 2023]. 2020. <https://brightoncollaboration.org/priority-list-of-adverse-events-of-special-interest-covid-19/>
137. U.S. Department of Health & Human Services (DHHS): Vaccine Side Effects. [Jul; 2023]. 2022. <https://www.hhs.gov/immunization/basics/safety/side-effects/index.html>
138. Covid-19 illness and vaccination experiences in social circles affect covid-19 vaccination decisions. . Skidmore M. https://www.publichealthpolicyjournal.com/_files/ugd/adf864_4c3afc4436234a96aa1f60bb6e67 *Sci Publ Health Pol & Law* . 2023;4:208–226. [[Google Scholar](#)]
139. A systematic review of autopsy findings in deaths after COVID-19 vaccinations. Hulscher N, Alexander PE, Amerling R, et al. *Zenodo*. 2023 [[Google Scholar](#)]

140. Autopsy findings in cases of fatal COVID-19 vaccine-induced myocarditis. Hulscher N, Hodkinson R, Makis W, McCullough PA. ESC Heart Failure. 2024;1–14. [[PubMed](#)] [[Google Scholar](#)]
141. Autopsy-based histopathological characterization of myocarditis after anti-SARS-CoV-2-vaccination. Schwab C, Domke LM, Hartmann L, et al. Clin Res Cardiol. 2023;112:431–440. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
142. Burkhardt Burkhardt, A A. Pathology Conference: Vaccine-induced spike protein production in the brain, organs etc., now proven [Webpage in German] [Oct; 2023]. 2022. <https://report24.news/pathologie-konferenz-impfinduzierte-spike-produktion-in-gehirn-u-a-organen-nun-erwiesen/>
143. Burkhardt Burkhardt, A A. Reutlingen Autopsy/Histology Study: Side-effects from corona vaccinations [Webpage in German] [Oct; 2023]. 2020. <https://corona-blog.net/2022/03/10/reutlinger-autopsie-histologie-studie-nebenwirkungen-und-todesfaelle-durch-die-corona-impfungen/>
144. A potential role of the spike protein in neurodegenerative diseases: a narrative review. Seneff S, Kyriakopoulos AM, Nigh G, McCullough PA. Cureus. 2023;15:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
145. COVID update: What is the truth? Blaylock RL. Surg Neurol Int. 2022;13:167. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
146. The EMA covid-19 data leak, and what it tells us about mRNA instability. Tinari S. BMJ. 2021;372:0. [[PubMed](#)] [[Google Scholar](#)]
147. Assessment Report COVID-19 Vaccine Moderna. Vol. 5791. Amsterdam, The Netherlands: European Medicines Agency; 2021. Assessment Report COVID-19 Vaccine Moderna; p. o. [[Google Scholar](#)]
148. Assessment Report: Comirnaty. Vol. 5735. Amsterdam, The Netherlands: European Medicines Agency; 2021. p. o. [[Google Scholar](#)]
149. Myocarditis and COVID-19 mRNA vaccines: a mechanistic hypothesis involving dsRNA. Milano G, Gal J, Creisson A, Chamorey E. Future Virol. 2021;17 [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
150. All vials are not the same: potential role of vaccine quality in vaccine adverse reactions. Bruce Yu Y, Taraban MB, Briggs KT. Vaccine. 2021;39:6565–6569. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
151. DNA fragments detected in monovalent and bivalent Pfizer/BioNTech and Moderna modRNA COVID-19 vaccines from Ontario, Canada: exploratory dose

response relationship with serious adverse events [PREPRINT] Speicher DJ, Rose J, Gutschi Gutschi, Wiseman DM, McKernan K. <https://osf.io/mjc97/> OSFPreprints. 2023 [Google Scholar]

152. Sequencing of bivalent Moderna and Pfizer mRNA vaccines reveals nanogram to microgram quantities of expression vector dsDNA per dose [PREPRINT] McKernan K, Helbert Y, Kane LT, McLaughlin S. <https://osf.io/preprints/osf/b9t7m> OSFPreprints. 2023 [Google Scholar]

153. Buckhaults P: Senate hearing statement by Phillip Buckhaults, PhD PhD. Senate Hearing On Dangerous and Potentially Fatal Errors Within The Methods of Vaccine Distribution. South Carolina Senate Medical Affairs Ad-Hoc Committee, Department of Health and Environmental Control (DHEC). 9/13/2023. [Jan; 2023]. September 20, 2023.. <https://arvozylo.medium.com/senate-hearing-on-dangerous-and-potentially-fatal-errors-within-the-methods-of-vaccine-distribution-8de70e51b237>

154. Horwood M. Health Canada Confirms Undisclosed Presence of DNA Sequence in Pfizer Shot. The Epoch Times. [Dec; 2023]. 2023. <https://www.theepochtimes.com/world/exclusive-health-canada-confirms-undisclosed-presence-of-dna-sequence-in-pfizer-shot-5513277>

155. Emergent human pathogen simian virus 40 and its role in cancer. Vilchez RA, Butel JS. Clin Microbiol Rev. 2004;17:495–508. [PMC free article] [PubMed] [Google Scholar]

156. Association between simian virus 40 and human tumors. Rotondo JC, Mazzoni E, Bononi I, Tognon M, Martini F. Front Oncol. 2019;9:670. [PMC free article] [PubMed] [Google Scholar]

157. Simian virus 40 in human cancers. Vilchez RA, Kozinetz CA, Arrington AS, et al. Am J Med. 2003;114:675–684. [PubMed] [Google Scholar]

158. Simian virus 40 transformation, malignant mesothelioma and brain tumors. Qi F, Carbone M, Yang H, Gaudino G. Expert Rev Respir Med. 2011;5:683–697. [PMC free article] [PubMed] [Google Scholar]

159. Muscle-specific enhancement of gene expression by incorporation of SV40 enhancer in the expression plasmid. Li S, MacLaughlin FC, Fewell JG, et al. Gene Ther. 2001;8:494–497. [PubMed] [Google Scholar]

160. Beyond negative evidence: Lessons from the disputes on DNA contamination of COVID-19 vaccines. Orient JM.

<https://jpands.org/vol28no4/orient.pdf> J Am Phys Surg. 2023;28:106–112.

[[Google Scholar](#)]

161. Baletti B: Florida Surgeon. Florida Surgeon General Calls for Halt in Use of COVID mRNA Vaccines. [Jan; 2024]. 2024.

<https://childrenshealthdefense.org/defender/florida-joseph-ladapo-halt-covid-mrna-vaccines/>

162. McCullough P: Florida Surgeon. Florida Surgeon General Calls for a Complete Halt on Pfizer and Moderna mRNA Vaccines. [Jan; 2024]. 2024.

<https://petermcculloughmd.substack.com/p/breaking-florida-surgeon-general>

163. Malone R. FDA Fails to Address DNA Adulteration Concerns. [Dec; 2023].

2023. pp. 2023–2017.<https://brownstone.org/articles/fda-fails-to-address-dna-adulteration-concerns/>

164. WCH Expert Panel Finds Cancer-Promoting DNA Contamination in Covid-19 Vaccines. [Dec; 2023];<https://worldcouncilforhealth.org/news/news-releases/dna-contamination-covid-19-vaccines/>

Oct. 2023 10:2023–2016.

[[Google Scholar](#)]

165. Covid-19: researchers face wait for patient level data from Pfizer and

Moderna vaccine trials. Block J. BMJ. 2022;378:o. [[PubMed](#)] [[Google Scholar](#)]

166. European Medicines Agency: Comirnaty. [Dec; 2023]. 2020.

<https://www.ema.europa.eu/en/medicines/human/EPAR/comirnaty>

167. Modifications in an emergency: the role of N1-methylpseudouridine in COVID-19 vaccines. Nance KD, Meier JL. ACS Cent Sci. 2021;7:748–756.

[[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

168. The critical contribution of pseudouridine to mRNA COVID-19 vaccines.

Morais P, Adachi H, Yu YT. Front Cell Dev Biol. 2021;9:789427. [[PMC free article](#)]

[[PubMed](#)] [[Google Scholar](#)]

169. Rose J. That Substack About N1-Methylpseudouridines and Frameshifting. [

Dec; 2023]. 2023. <https://jessicar.substack.com/p/that-substack-about-n1-methylpseudouridines>

170. N(1)-methylpseudouridylation of mRNA causes +1 ribosomal frameshifting.

Mulroney TE, Pöyry T, Yam-Puc JC, et al. Nature. 2024;625:189–194.

[[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

171. Reaction of human monoclonal antibodies to SARS-CoV-2 proteins with tissue antigens: Implications for autoimmune diseases. Vojdani A, Vojdani E,

Kharrazian D. Front Immunol. 2020;11:617089. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

172. Molecular mimicry between SARS-CoV-2 spike glycoprotein and mammalian proteomes: implications for the vaccine. Kanduc D, Shoenfeld Y. Immunol Res. 2020;68:310–313. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

173. Rose J. VAERS Reports Contradict Claim of No AEs in Frameshifting Context. [Dec; 2023]. 2023. <https://jessicar.substack.com/p/vaers-reports-contradict-claim-of>

174. Ribosomal frameshifting and misreading of mRNA in COVID-19 vaccines produces “off-target” proteins and immune responses eliciting safety concerns: Comment on UK study by Mulroney et al. [PREPRINT] Wiseman DM, Gutschi LM, Speicher DJ, et al. OSFPreprints. [[Google Scholar](#)]

175. Immune response and molecular mechanisms of cardiovascular adverse effects of spike proteins from SARS-CoV-2 and mRNA vaccines. Bellavite P, Ferraresi A, Isidoro C. Biomed. 2023;11:451. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

176. COVID-19 mRNA vaccines: the molecular basis of some adverse events. Giannotta G, Murrone A, Giannotta N. Vaccines (Basel) 2023;11:747. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

177. Response to Barriere et al. Seneff S, Nigh G, Kyriakopoulos AM, McCullough PA. Food Chem Toxicol. 2023;178:113898. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

178. The novelty of mRNA viral vaccines and potential harms: a scoping review. Halma MTJ, Rose J, Lawrie T. J. 2023;6:220–235. [[Google Scholar](#)]

179. Inflammation and platelet activation after COVID-19 vaccines - possible mechanisms behind vaccine-induced immune thrombocytopenia and thrombosis. Ostrowski SR, Søgaaard OS, Tolstrup M, Stærke NB, Lundgren J, Østergaard L, Hvas AM. Front Immunol. 2021;12:779453. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

180. 'Spikeopathy': COVID-19 spike protein is pathogenic, from both virus and vaccine mRNA. Parry PI, Lefringhausen A, Turni C, Neil CJ, Cosford R, Hudson NJ, Gillespie J. Biomed. 2023;11:2287. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

181. Vaccine- and natural infection-induced mechanisms that could modulate vaccine safety. Kostoff RN, Kanduc D, Porter AL, et al. *Toxicol Rep.* 2020;7:1448–1458. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
182. Molecular mimicry of the viral spike in the SARS-CoV-2 vaccine possibly triggers transient dysregulation of ACE2, leading to vascular and coagulation dysfunction similar to SARS-CoV-2 infection. Devaux CA, Camoin-Jau L. *Viruses.* 2023;15:1045. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
183. From anti-severe acute respiratory syndrome coronavirus 2 immune response to cancer onset via molecular mimicry and cross-reactivity. Kanduc D. *Glob Med Genet.* 2021;8:176–182. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
184. Pathogenic priming likely contributes to serious and critical illness and mortality in COVID-19 via autoimmunity. Lyons-Weiler J. *J Transl Autoimmun.* 2020;3:100051. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
185. Adverse effects following anti-COVID-19 vaccination with mRNA-based BNT162b2 are alleviated by altering the route of administration and correlate with baseline enrichment of T and NK cell genes. Syenina A, Gan ES, Toh JZ, et al. *PLoS Biol.* 2022;20:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
186. Lipid nanoparticles for mRNA delivery. Hou X, Zaks T, Langer R, Dong Y. *Nat Rev Mater.* 2021;6:1078–1094. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
187. Correlation of the cytotoxic effects of cationic lipids with their headgroups. Cui S, Wang Y, Gong Y, et al. *Toxicol Res (Camb)* 2018;7:473–479. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
188. Interaction of amphiphilic aggregates with cells of the immune system. Ashman RB, Blanden RV, Ninham BW, Evans DF. *Immunol Today.* 1986;7:278–283. [[PubMed](#)] [[Google Scholar](#)]
189. Tolerance, danger, and the extended family. Matzinger P. *Annu Rev Immunol.* 1994;12:991–1045. [[PubMed](#)] [[Google Scholar](#)]
190. Polyethylene glycol-induced systemic allergic reactions (anaphylaxis) Sellaturay P, Nasser S, Ewan P. *J Allergy Clin Immunol Pract.* 2021;9:670–675. [[PubMed](#)] [[Google Scholar](#)]
191. The role and impact of polyethylene glycol on anaphylactic reactions to COVID-19 nano-vaccines. Bigini P, Gobbi M, Bonati M, Clavenna A, Zucchetti M, Garattini S, Pasut G. *Nat Nanotechnol.* 2021;16:1169–1171. [[PubMed](#)] [[Google Scholar](#)]

192. Pilot findings on SARS-CoV-2 vaccine-induced pituitary diseases: a mini review from diagnosis to pathophysiology. Taieb A, Mounira EE. *Vaccines (Basel)* 2022;10:2004. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
193. Pituitary apoplexy and COVID-19 vaccination: a case report and literature review. Aliberti L, Gagliardi I, Rizzo R, et al. *Front Endocrinol (Lausanne)* 2022;13:1035482. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
194. Vertigo/dizziness following COVID-19 vaccination. Yan HY, Young YH. *Am J Otolaryngol*. 2023;44:103723. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
195. Duration of SARS-CoV-2 mRNA vaccine persistence and factors associated with cardiac involvement in recently vaccinated patients. Krauson AJ, Casimero FV, Siddiquee Z, Stone JR. *NPJ Vaccines*. 2023;8:141. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
196. SARS-CoV-2 spike protein induces inflammation via TLR2-dependent activation of the NF- κ B pathway. Khan S, Shafiei MS, Longoria C, Schoggins JW, Savani RC, Zaki H. *Elife*. 2021;10:68563. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
197. SARS-CoV-2 spike protein induces paracrine senescence and leukocyte adhesion in endothelial cells. Meyer K, Patra T, Vijayamahantesh Vijayamahantesh, Ray R. *J Virol*. 2021;95:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
198. Amyloidogenesis of SARS-CoV-2 spike protein. Nyström S, Hammarström P. *J Am Chem Soc*. 2022;144:8945–8950. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
199. Arrhythmias after COVID-19 vaccination: have we left all stones unturned? Cocco N, Leibundgut G, Pelliccia F, et al. *Int J Mol Sci*. 2023;24:10405. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
200. Epigenomic landscape exhibits interferon signaling suppression in the patient of myocarditis after BNT162b2 vaccination. Kim H, Ahn HS, Hwang N, et al. *Sci Rep*. 2023;13:8926. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
201. Shedding light on mechanisms of myocarditis with COVID-19 mRNA vaccines. Bozkurt B. *Circulation*. 2023;147:877–880. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
202. Circulating spike protein detected in post- COVID-19 mRNA vaccine myocarditis. Yonker LM, Swank Z, Bartsch YC, et al. *Circulation*. 2023;147:867–

876. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

203. Intramyocardial inflammation after COVID-19 vaccination: an endomyocardial biopsy-proven case series. Baumeier C, Aleshcheva G, Harms D, et al. *Int J Mol Sci.* 2022;23:6940. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

204. Catecholamines are the key trigger of COVID-19 mRNA vaccine-induced myocarditis: a compelling hypothesis supported by epidemiological, anatomopathological, molecular, and physiological findings. Cadeiani FA. *Cureus.* 2022;14:0. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

205. Angiotensin II affects inflammation mechanisms via AMPK-related signalling pathways in HL-1 atrial myocytes. Kim N, Jung Y, Nam M, et al. *Sci Rep.* 2017;7:10328. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

206. T-cell exhaustion, co-stimulation and clinical outcome in autoimmunity and infection. McKinney EF, Lee JC, Jayne DR, Lyons PA, Smith KG. *Nature.* 2015;523:612–616. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

207. Comprehensive investigations revealed consistent pathophysiological alterations after vaccination with COVID-19 vaccines. Liu J, Wang J, Xu J, et al. *Cell Discov.* 2021;7:99. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

208. Not-so-opposite ends of the spectrum: CD8(+) T cell dysfunction across chronic infection, cancer and autoimmunity. Collier JL, Weiss SA, Pauken KE, Sen DR, Sharpe AH. *Nat Immunol.* 2021;22:809–819. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

209. Class switch toward noninflammatory, spike-specific IgG4 antibodies after repeated SARS-CoV-2 mRNA vaccination. Irrgang P, Gerling J, Kocher K, et al. *Sci Immunol.* 2023;8:0. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

210. IgG4 antibodies induced by repeated vaccination may generate immune tolerance to the SARS-CoV-2 spike protein. Uversky VN, Redwan EM, Makis W, Rubio-Casillas A. *Vaccines (Basel)* 2023;11:99. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

211. Hybrid and herd immunity 6 months after SARS-CoV-2 exposure among individuals from a community treatment program. Chevairsakul P, Lumjiaktase P, Kietdumrongwong P, Chuatrisorn I, Chatsangaroen P, Phanuphak N. *Sci Rep.* 2023;13:763. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

212. Increased PD-L1 surface expression on peripheral blood granulocytes and monocytes after vaccination with SARS-CoV2 mRNA or vector vaccine. Loader

L, Kimpel J, Bánki Z, Schmidt CQ, Griesmacher A, Anliker M.

<https://www.degruyter.com/document/doi/10.1515/cclm-2022-0787/html> Clin

Chem Lab Med. 2023;61:0–9. [[PubMed](#)] [[Google Scholar](#)]

213. Role of the tumor microenvironment in PD-L1/PD-1-mediated tumor immune escape. Jiang X, Wang J, Deng X, et al. Mol Cancer. 2019;18:10.

[[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

214. Roles of PD-1/PD-L1 pathway: signaling, cancer, and beyond. Ai L, Xu A, Xu J.

Adv Exp Med Biol. 2020;1248:33–59. [[PubMed](#)] [[Google Scholar](#)]

215. Rapid progression of angioimmunoblastic T cell lymphoma following BNT162b2 mRNA vaccine booster shot: a case report. Goldman S, Bron D,

Tousseyn T, et al. Front Med (Lausanne) 2021;8:798095. [[PMC free article](#)]

[[PubMed](#)] [[Google Scholar](#)]

216. Rapid progression of marginal zone B-cell lymphoma after COVID-19

vaccination (BNT162b2): a case report. Sekizawa A, Hashimoto K, Kobayashi S, et

al. Front Med (Lausanne) 2022;9:963393. [[PMC free article](#)] [[PubMed](#)]

[[Google Scholar](#)]

217. Newly diagnosed extranodal NK/T-cell lymphoma, nasal type, at the injected

left arm after BNT162b2 mRNA COVID-19 vaccination. Tachita T, Takahata T,

Yamashita S, et al. Int J Hematol. 2023;118:503–507. [[PMC free article](#)] [[PubMed](#)]

[[Google Scholar](#)]

218. Hematologic malignancies diagnosed in the context of the mRNA COVID-19

vaccination campaign: a report of two cases. Zamfir MA, Moraru L, Dobrea C, et

al. Medicina (Kaunas) 2022;58:874. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

219. SARS-CoV-2 vaccination and the multi-hit hypothesis of oncogenesis.

Angues VR, Bustos PY. Cureus. 2023;15:0. [[PMC free article](#)] [[PubMed](#)]

[[Google Scholar](#)]

220. Immune profiling uncovers memory T-cell responses with a Th17 signature

in cancer patients with previous SARS-CoV-2 infection followed by mRNA

vaccination. Echaide M, Labiano I, Delgado M, et al. Cancers (Basel)

2022;14:4464. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

221. Overview of anti-SARS-CoV-2 immune response six months after BNT162b2

mRNA vaccine. Gandolfo C, Anichini G, Mugnaini M, et al. Vaccines (Basel)

2022;10:171. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

222. mRNA vaccines against SARS-CoV- 2: advantages and caveats. Echaide M, Chocarro de Erauso L, Bocanegra A, Blanco E, Kochan G, Escors D. *Int J Mol Sci*. 2023;24:5944. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
223. Mucosal immunity: the missing link in comprehending SARS-CoV-2 infection and transmission. Russell MW, Mestecky J. *Front Immunol*. 2022;13:957107. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
224. Mucosal vaccines - fortifying the frontiers. Lavelle EC, Ward RW. *Nat Rev Immunol*. 2022;22:236–250. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
225. Adaptive immune responses and immunity to SARS-CoV-2. Primorac D, Vrdoljak K, Brlek P, et al. *Front Immunol*. 2022;13:848582. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
226. Nasal IgA provides protection against human influenza challenge in volunteers with low serum influenza antibody titre. Gould VM, Francis JN, Anderson KJ, Georges B, Cope AV, Tregoning JS. *Front Microbiol*. 2017;8:900. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
227. Mucosal immune responses to infection and vaccination in the respiratory tract. Mettelman RC, Allen EK, Thomas PG. *Immunity*. 2022;55:749–780. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
228. Intranasal COVID-19 vaccines: from bench to bed. Alu A, Chen L, Lei H, Wei Y, Tian X, Wei X. *EBioMedicine*. 2022;76:103841. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
229. Modelling COVID-19 vaccine breakthrough infections in highly vaccinated Israel-the effects of waning immunity and third vaccination dose. Feng A, Obolski U, Stone L, He D. *PLOS Glob Public Health*. 2022;2:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
230. Rapid decline in vaccine-boosted neutralizing antibodies against SARS-CoV-2 Omicron variant. Lyke KE, Atmar RL, Islas CD, et al. *Cell Rep Med*. 2022;3:100679. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
231. Effectiveness of second booster compared to first booster and protection conferred by previous SARS-CoV-2 infection against symptomatic Omicron BA.2 and BA.4/5 in France. Tamandjou C, Auvigne V, Schaeffer J, Vaux S, Parent du Châtelet I. *Vaccine*. 2023;41:2754–2760. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

232. Original antigen sin and COVID-19: implications for seasonal vaccination. McCarthy MW. Expert Opin Biol Ther. 2022;22:1353–1358. [[PubMed](#)] [[Google Scholar](#)]
233. "Original antigenic sin": a potential threat beyond the development of booster vaccination against novel SARS-CoV-2 variants. Noori M, Nejadghaderi SA, Rezaei N. Infect Control Hosp Epidemiol. 2022;43:1091–1092. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
234. Cross-reactive antibody response between SARS-CoV-2 and SARS-CoV infections. Lv H, Wu NC, Tsang OT, et al. Cell Rep. 2020;31:107725. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
235. Viral epitope profiling of COVID-19 patients reveals cross-reactivity and correlates of severity. Shrock E, Fujimura E, Kula T, et al. Science. 2020;370:4250. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
236. Immune imprinting, breadth of variant recognition, and germinal center response in human SARS-CoV-2 infection and vaccination. Röltgen K, Nielsen SC, Silva O, et al. Cell. 2022;185:1025–1040. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
237. Robust immune responses after one dose of BNT162b2 mRNA vaccine dose in SARS-CoV-2 experienced individuals [PREPRINT] Samanovic MI, Cornelius AR, Gray-Gaillard SL, et al. medRxiv. 2021 [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
238. Bivalent Covid-19 vaccines - a cautionary tale. Offit PA. N Engl J Med. 2023;388:481–483. [[PubMed](#)] [[Google Scholar](#)]
239. Possible effect of the "original antigenic sin" in vaccination against new variants of SARS-CoV-2. Reina J. Rev Clin Esp (Barc) 2022;222:91–92. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
240. Extended SARS-CoV-2 RBD booster vaccination induces humoral and cellular immune tolerance in mice. Gao FX, Wu RX, Shen MY, et al. iScience. 2022;25:105479. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
241. Mutation signatures and in silico docking of novel SARS-CoV-2 variants of concern. Shahhosseini N, Babuadze GG, Wong G, Kobinger GP. Microorganisms. 2021;9:926. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
242. Development of antibody resistance in emerging mutant strains of SARS CoV-2: impediment for COVID-19 vaccines. Beeraka NM, Sukocheva OA, Lukina

E, Liu J, Fan R. Rev Med Virol. 2022;32:0. [[PMC free article](#)] [[PubMed](#)]
[[Google Scholar](#)]

243. Polymorphism and selection pressure of SARS-CoV-2 vaccine and diagnostic antigens: implications for immune evasion and serologic diagnostic performance. Dumonteil E, Herrera C. Pathogens. 2020;9:584. [[PMC free article](#)] [[PubMed](#)]
[[Google Scholar](#)]

244. The spike protein of SARS-CoV-2 is adapting because of selective pressures. López-Cortés GI, Palacios-Pérez M, Veleáz HF, Hernández-Aguilar M, López-Hernández GR, Zamudio GS, José MV. Vaccines (Basel) 2022;10:864.
[[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

245. A detailed overview of immune escape, antibody escape, partial vaccine escape of SARS-CoV-2 and their emerging variants with escape mutations. Chakraborty C, Sharma AR, Bhattacharya M, Lee SS. Front Immunol. 2022;13:801522. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

246. Worse than the disease? Reviewing some possible unintended consequences of the mRNA vaccines against COVID-19. Seneff S, Nigh G. Int J Vaccine Theory Pract Res. 2021;2:38–79. [[Google Scholar](#)]

247. Repeated vaccination and ‘vaccine exhaustion’: relevance to the COVID-19 crisis. Azim Majumder MA, Razzaque MS. Expert Rev Vaccines. 2022;21:1011–1014.
[[PubMed](#)] [[Google Scholar](#)]

248. Global emerging Omicron variant of SARS-CoV-2: impacts, challenges and strategies. Dhama K, Nainu F, Frediansyah A, et al. J Infect Public Health. 2023;16:4–14. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

249. Placebo-controlled trials of Covid-19 vaccines - why we still need them. Krause PR, Fleming TR, Longini IM, et al. N Engl J Med. 2021;384:0. [[PubMed](#)]
[[Google Scholar](#)]

250. Historical Vaccine Safety Concerns. [Oct; 2023]. 2020.
<https://www.cdc.gov/vaccinesafety/concerns/concerns-history.html>

251. Rotavirus Vaccine (RotaShield®) and Intussusception. [Oct; 2023]. 1999.
<https://www.cdc.gov/vaccines/vpd-vac/rotavirus/vac-rotashield-historical.htm>

252. Pfizer Pfizer. Periodic Safety Update Report #3 for Active Substance: COVID-19 mRNA Vaccine, BNT162b2. Vol. 10. Mainz, Germany: BioNTech Manufacturing GmbH; 2022. Periodic safety update report #3 for active substance: COVID-19 mRNA vaccine, BNT162b2 (396 pages). (Aug; pp. 2022–2016. [[Google Scholar](#)]

253. Horowitz: Confidential Pfizer document shows the company observed 1.6 million adverse events covering nearly every organ system. [Oct; 2023];Horowitz D. <https://www.conservativereview.com/horowitz-confidential-pfizer-document-shows-the-company-observed-1-6-million-adverse-events-covering-nearly-every-organ-system-2661316948.html> Jun. 2023 14:2023–2016. [[Google Scholar](#)]

254. Is there a link between the 2021 COVID-19 vaccination uptake in Europe and 2022 excess all-cause mortality? Aarstad J, Kvitastein OA. Asian Pac J Health Sci. 2022;2023:25–31. [[Google Scholar](#)]

255. Rancourt DG, Baudin M, Hickey J, Mercier J. Correlation Research in the Public Interest. September 17. Ontario, Canada: Correlation Research in the Public Interest; 2023. COVID-19 Vaccine-Associated Mortality in the Southern Hemisphere. [[Google Scholar](#)]

256. Rancourt DG, Baudin M, Hickey J, Mercier J. Correlation Research in the Public Interest. February 9. Ontario, Canada: Correlation Research in the Public Interest; Age-Stratified COVID-19 Vaccine-Dose Fatality Rate for Israel and Australia. [[Google Scholar](#)]

257. Pfizer-BioNTech Submits New COVID Vaccine Booster Targeting BA.5 to the FDA for Authorization. [Oct; 2023];Rodriguez A. <https://www.usatoday.com/story/news/health/2022/08/22/pfizer-covid-booster-omicron-submitted-fda-emergency-authorization/7844312001/> 2022 22:2022–2016. [[Google Scholar](#)]

258. COVID-19 vaccine boosters for young adults: a risk benefit assessment and ethical analysis of mandate policies at universities. Bardosh K, Krug A, Jamrozik E, et al. J Med Ethics. 2022 [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

259. Palmer M, Bhakdi S, Wodarg W. Apr. Vol. 29. Amsterdam, The Netherlands: Doctors for COVID Ethics; 2022. On the Use of the Pfizer and the Moderna COVID-19 mRNA Vaccines in Children and Adolescents; pp. 2022–2016. [[Google Scholar](#)]

260. Cardiovascular manifestation of the BNT162b2 mRNA COVID-19 vaccine in adolescents. Mansanguan S, Charunwatthana P, Piyaphanee W, Dechkhajorn W, Poolcharoen A, Mansanguan C. Trop Med Infect Dis. 2022;7:196. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

261. Sex-specific differences in myocardial injury incidence after COVID-19 mRNA-1273 booster vaccination. Buergin N, Lopez-Ayala P, Hirsiger JR, et al. Eur J Heart Fail. 2023;25:1871–1881. [[PubMed](#)] [[Google Scholar](#)]

262. Risk of myocarditis from COVID-19 infection in people under age 20: a population-based analysis [PREPRINT] Singer ME, Taub IB, Kaelber DC. medRxiv. 2022 [[Google Scholar](#)]
263. Association of cardiovascular events with COVID-19 vaccines using vaccine adverse event reporting system (VAERS): a retrospective study. Amir M, Latha S, Sharma R, Kumar A. Curr Drug Saf. 2023 [[PubMed](#)] [[Google Scholar](#)]
264. Hurley P, Krohn M, LaSala T, et al. Group Life COVID-19 Mortality Survey Report. Schaumburg, Illinois: Society of Actuaries Research Institute; 2023. Group life COVID-19 mortality survey report, November 2023 - updated through June 2023. Society of Actuaries. (2023). Accessed: December 15. [[Google Scholar](#)]
265. Quarterly Excess Death Rate Analysis. Nov. [Dec; 2023]. 2022. <https://phinancetechnologies.com/HumanityProjects/Quarterly%20Excess%20Death%20Rate%20US.htm>
266. Irrefutable Evidence Vaccine Mandates Killed & Disabled Countless Americans. [Jul; 2023];Dowd E. https://twitter.com/NFSC_HAGnews/status/1640624477527769088 2022 20:2023–2027. [[Google Scholar](#)]
267. Rational harm-benefit assessments by age group are required for continued COVID-19 vaccination. Polykretis P, McCullough PA. Scand J Immunol. 2022:0. [[Google Scholar](#)]
268. Genetic basis of sudden death after COVID-19 vaccination in Thailand. Ittiwut C, Mahasirimongkol S, Srisont S, et al. Heart Rhythm. 2022;19:1874–1879. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
269. COVID-19 vaccines: concerns beyond protective efficacy and safety. Lai CC, Chen IT, Chao CM, Lee PI, Ko WC, Hsueh PR. Expert Rev Vaccines. 2021;20:1013–1025. [[PubMed](#)] [[Google Scholar](#)]
270. Integrative analyses of genes about venous thromboembolism: An umbrella review of systematic reviews and meta-analyses. Lee S, Lee CH, Seo MS, Yoo JI. Medicine (Baltimore) 2022;101:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
271. Roser M. Why is Life Expectancy in the US Lower Than in Other Rich Countries? [Dec; 2023]. 2020. <https://ourworldindata.org/us-life-expectancy-low>
272. COVID-Period mass vaccination campaign and public health disaster in the USA from age/state-resolved all-cause mortality by time, age-resolved vaccine delivery by time, and socio-geo-economic data [PREPRINT] Rancourt DG,

Baudin M, Mercier J.

https://www.researchgate.net/publication/362427136_COVID-Period_Mass_Vaccination_Campaign_and_Public_Health_Disaster_in_the_USA_From_agestr_resolved_all-cause_mortality_by_time_age-resolved_vaccine_delivery_by_time_and_socio-geo-economic_data
ResearchGate. 2022 [[Google Scholar](#)]

273. Long-term survival and function after stroke: a longitudinal observational study from the Swedish stroke register. Sennfalt S, Norrving B, Petersson J, Ullberg T. Stroke. 2019;50:53–61. [[PubMed](#)] [[Google Scholar](#)]

274. Cardiovascular assessment up to one year after COVID-19 vaccine-associated myocarditis. Yu CK, Tsao S, Ng CW, et al. Circulation. 2023;148:436–439. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

275. Cytokinopathy with aberrant cytotoxic lymphocytes and profibrotic myeloid response in SARS-CoV-2 mRNA vaccine-associated myocarditis. Barmada A, Klein J, Ramaswamy A, et al. Sci Immunol. 2023;8:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

276. Myocarditis: etiology, pathogenesis, and their implications in clinical practice. Brociek E, Tymińska A, Giordani AS, Caforio AL, Wojnicz R, Grabowski M, Ozierański K. Biology (Basel) 2023;12:874. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

277. Long COVID: major findings, mechanisms and recommendations. Davis HE, McCorkell L, Vogel JM, Topol EJ. Nat Rev Microbiol. 2023;21:133–146. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

278. Proposed subtypes of post-COVID-19 syndrome (or long-COVID) and their respective potential therapies. Yong SJ, Liu S. Rev Med Virol. 2022;32:0. [[PubMed](#)] [[Google Scholar](#)]

279. Long COVID: an overview. Raveendran AV, Jayadevan R, Sashidharan S. Diabetes Metab Syndr. 2021;15:869–875. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

280. Characteristics and predictors of long COVID among diagnosed cases of COVID-19. Arjun MC, Singh AK, Pal D, et al. PLoS One. 2022;17:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

281. Clinical approach to post-acute sequelae after COVID-19 infection and vaccination. Hulscher N, Procter BC, Wynn C, McCullough PA. Cureus. 2023;15:0. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

282. Rare link between coronavirus vaccines and Long Covid-like illness starts to gain acceptance. Vogel G, Couzin-Frankel J. Science. 2023;381:6653.

[\[Google Scholar\]](#)

283. Detection of recombinant Spike protein in the blood of individuals vaccinated against SARS-CoV-2: possible molecular mechanisms. Brogna C, Cristoni S, Marino G, et al. Proteomics Clin Appl. 2023;17:0. [\[PubMed\]](#)

[\[Google Scholar\]](#)

284. Persistent circulation of soluble and extracellular vesicle-linked Spike protein in individuals with postacute sequelae of COVID-19. Craddock V, Mahajan A, Spikes L, et al. J Med Virol. 2023;95:0. [\[PMC free article\]](#) [\[PubMed\]](#)

[\[Google Scholar\]](#)

285. Presence of viral spike protein and vaccinal spike protein in the blood serum of patients with long-COVID syndrome. Dhuli K, Medori MC, Micheletti C, et al. Eur Rev Med Pharmacol Sci. 2023;27:13–19. [\[PubMed\]](#) [\[Google Scholar\]](#)

286. Association between virus variants, vaccination, previous infections, and post-COVID-19 risk. Diexer S, Klee B, Gottschick C, et al. Int J Infect Dis. 2023;136:14–21. [\[PubMed\]](#) [\[Google Scholar\]](#)

287. COVID-19, post-acute COVID-19 syndrome (PACS, “long COVID”) and post-COVID-19 vaccination syndrome (PCVS, “post-COVIDvac-syndrome”): similarities and differences. Scholkmann F, May CA. Pathol Res Pract. 2023;246:154497. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

288. Rodziewicz TL, Houseman B, Hipskind JE. StatPearls [Internet] Treasure Island (FL): StatPearls Publishing; 2023. Medical error reduction and prevention. [\[Google Scholar\]](#)

289. Clinical errors and medical negligence. Oyeboode F. Med Princ Pract. 2013;22:323–333. [\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

290. Kohn LT, Corrigan JM, Donaldson MS. Washington, DC: The National Academies Press; 2000. To Err Is Human: Building a Safer Health System. [\[PubMed\]](#) [\[Google Scholar\]](#)

291. How Many Deaths Were Caused by the Covid Vaccines? 2023. <https://wherearethenumbers.substack.com/p/how-many-deaths-were-caused-by-the>

292. Safety and immunogenicity of concomitant administration of COVID-19 vaccines (ChAdOx1 or BNT162b2) with seasonal influenza vaccines in adults in

the UK (ComFluCOV): a multicentre, randomised, controlled, phase 4 trial.

Lazarus R, Baos S, Cappel-Porter H, et al. Lancet. 2021;398:2277–2287.

[\[PMC free article\]](#) [\[PubMed\]](#) [\[Google Scholar\]](#)

293. Infection fatality rate of COVID-19 inferred from seroprevalence data.

Ioannidis JP. Bull World Health Organ. 2021;99:19–33. [\[PMC free article\]](#)

[\[PubMed\]](#) [\[Google Scholar\]](#)

Page 2

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Analysis of Pfizer trial's weekly mortality over a 33-week period

This representation of the Pfizer trial by Michels et al. [\[54\]](#) showcases the weekly count of subject deaths from July 27, 2020, to March 13, 2021. Solid bars denote BNT162b2 recipients, gray bars signify the placebo group, and hatched bars represent previously unblinded placebo subjects who later received BNT162b2. The solid line represents the cumulative death count for the BNT162b2 group and the dotted line for the placebo group.

Image Source: Michels et al., 2023 [\[54\]](#); Published with permission by authors under CC BY-NC-ND 4.0 Deed (Attribution-NonCommercial-NoDerivs 4.0 International)